

Atty. Docket No.: 9222.16791-CON 2

- 34 -

What is claimed is:

1. A sphincter treatment apparatus,
comprising:

an energy delivery device introduction member
5 having a proximal end with a first radius of curvature
and a distal end with a second radius of curvature,
wherein the second radius of curvature is greater than
the first radius of curvature, the introduction member
configured to be introduced in the sphincter in a non-
10 deployed state, and expanded to a deployed state to at
least partially expand at least one of the sphincter or
an adjoining structure;

a first energy delivery device coupled to the
energy delivery device introduction member, the first
15 energy delivery device having a distal portion
introducible into an interior of the sphincter; and

a retainer member coupled to the energy
delivery device introduction member and configured to
controllably position the energy delivery device
20 introduction member in an orifice of a sphincter.

2. The apparatus of claim 1, wherein the
retainer member

is configured to retain the energy delivery
device introduction member along a longitudinal axis of
25 the sphincter.

3. The apparatus of claim 1, wherein the
retainer member

is configured to reduce a movement of the
energy delivery device introduction member in the orifice
30 along a longitudinal axis of the sphincter.

4. The apparatus of claim 1, wherein the
retainer member

is configured to reduce a lateral movement of
the energy delivery device introduction member in the
35 orifice along a longitudinal axis of the sphincter.

Atty. Docket No.: 9222.16791-CON 2

- 35 -

5. The apparatus of claim 1, wherein the first energy delivery device is an electrode.

6. The apparatus of claim 5, wherein the electrode has a tissue piercing distal end.

5 7. The apparatus of claim 1, wherein the energy delivery device introduction member is an expandable basket device.

8. The apparatus of claim 1, wherein the retainer member
10 is a catheter made of polymeric material.

9. The apparatus of claim 1, wherein the retainer member
is configured to reduce a movement of an esophagus.

15 10. The apparatus of claim 1, wherein the retainer member has sufficient rigidity to reduce a movement of the sphincter.

11. The apparatus of claim 10, wherein the retainer member has sufficient rigidity to reduce a
20 movement of an esophagus.

12. The apparatus of claim 1, wherein the retainer member
at least partially surrounds the energy delivery device introduction member.

25 13. The apparatus of claim 7, wherein the basket device
has a tapered tip to facilitate introduction into the sphincter.

14. The apparatus of claim 1, wherein the at
30 least a
portion of the energy delivery device introduction member is configured to be in a contacting relationship with a surface of the sphincter in the deployed configuration.

35 15. The apparatus of claim 14, wherein the

energy delivery device introduction member has a texturized surface with a sufficient coefficient of friction to reduce a movement of a sphincter surface.

16. The apparatus of claim 14, wherein the
5 energy delivery device introduction member has a texturized surface with a sufficient coefficient of friction to reduce a movement of the energy delivery device introduction member.

17. A sphincter treatment apparatus,
10 comprising:
an energy delivery device introduction member comprising an expandable balloon having a proximal end with a first radius of curvature and a distal end with a second radius of curvature, wherein the second radius of
15 curvature is greater than the first radius of curvature, the introduction member configured to be introduced in the sphincter in a non-deployed state, and expanded to a deployed state to at least partially expand at least one of the sphincter or an adjoining structure;

20 a first energy delivery device coupled to the energy delivery device introduction member, the first energy delivery device having a distal portion; and

a retainer member coupled to the energy delivery device introduction member and configured to
25 controllably position the energy delivery device introduction member in an orifice of a sphincter.

18. The apparatus of claim 17, wherein the balloon has a tapered tip to facilitate introduction into a sphincter.

30 19. A sphincter treatment apparatus, comprising:

an energy delivery device introduction member having a proximal end with a first radius of curvature and a distal end with a second radius of curvature,
35 wherein the second radius of curvature is greater than

Atty. Docket No.: 9222.16791-CON 2

- 37 -

the first radius of curvature, the introduction member configured to be introduced in the sphincter in a non-deployed state, and expanded to a deployed state to at least partially expand at least one of the sphincter or
5 an adjoining structure;

a first energy delivery device coupled to the energy delivery device introduction member, the first energy delivery device having a distal portion; and

an endoscope made of polymeric material
10 coupled to the energy delivery device introduction member and configured to controllably position the energy delivery device introduction member in an orifice of a sphincter

20. A sphincter treatment apparatus,
15 comprising:

an energy delivery device introduction member having a proximal end with a first radius of curvature and a distal end with a second radius of curvature, wherein the second radius of curvature is greater than
20 the first radius of curvature, the introduction member configured to be introduced in the sphincter in a non-deployed state, and expanded to a deployed state to at least partially expand at least one of the sphincter or an adjoining structure;

25 an energy-delivering RF needle electrode coupled to the energy delivery device introduction member, the RF needle electrode having a distal portion; and

a retainer member coupled to the energy
30 delivery device introduction member and configured to controllably position the energy delivery device introduction member in an orifice of a sphincter.

21. The apparatus of claim 20, wherein the
retainer member

35 has sufficient rigidity to reduce movement of

the sphincter and reduce an amount of tearing of a sphincter mucosa upon an introduction of the RF needle electrode into the sphincter.

22. The apparatus of claim 20, wherein the
5 retainer member

has sufficient rigidity to reduce movement of the sphincter and permit maintenance of a constant angle of penetration of the RF needle electrode through a sphincter surface.

10 23. The apparatus of claim 20, wherein the retainer member has sufficient rigidity to reduce movement of the sphincter and facilitate introduction of the RF needle electrode into the sphincter.

15 24. The apparatus of claim 20, wherein the retainer member at least partially surrounds the energy delivery device introduction member and includes a slot to enhance an engagement of the energy delivery device introduction member with the sphincter and facilitate introduction of the RF needle electrode into the
20 sphincter.

25 25. The apparatus of claim 20, wherein the retainer member at least partially surrounds the energy delivery device introduction member and includes a slot to enhance an engagement of the energy delivery device introduction member with the sphincter and reduce an amount of tearing of a sphincter mucosa upon an introduction of the RF needle electrode into the sphincter.

30 26. The apparatus of claim 20, wherein the retainer member at least partially surrounds the energy delivery device introduction member and includes a slot to enhance an engagement of the energy delivery device introduction member with the sphincter and permit maintenance of a constant angle of penetration of the RF
35 needle electrode through a sphincter surface.

Atty. Docket No.: 9222.16791-CON 2

- 39 -

27. The apparatus of claim 20, wherein the energy delivery

device introduction member has a texturized surface with a

5 sufficient coefficient of friction to reduce a movement of a

sphincter surface and facilitate introduction of the RF needle

electrode into the sphincter.

10 28. The apparatus of claim 20, wherein the energy delivery

device introduction member has a texturized surface with a sufficient coefficient of friction to reduce a movement of a sphincter surface and reduce an
15 amount of tearing of a sphincter mucosa upon an introduction of the RF needle electrode into the sphincter.

29. The apparatus of claim 20, wherein the energy delivery

20 device introduction member has a texturized surface with a sufficient coefficient of friction to reduce a movement of a sphincter surface and permit maintenance of a constant angle of penetration of the RF needle electrode through a sphincter surface.

25 30. The apparatus of claim 20, wherein the energy delivery device introduction member is a basket device and the RF electrode is coupled to an electrode delivery member having proximal and distal ends.

31. The apparatus of claim 30, further
30 comprising:

a guiding tool coupled to the electrode delivery member, the guiding tool having at least one aperture with a proximal end and a distal end, wherein the RF electrode is advanced through the aperture in the
35 guiding tool and the introduction of the RF needle

electrode into the sphincter is facilitated.

32. The apparatus of claim 31 wherein the aperture proximal end and the aperture distal end are located in a different plane.

5 33. The apparatus of claim 31, wherein the RF electrode is advanced through an aperture in the energy delivery device introduction member.

10 34. The apparatus of claim 20, wherein the energy delivery device introduction member is a basket device and the RF electrode is coupled to an electrode delivery member having proximal and distal ends.

35. The apparatus of claim 34, further comprising:

15 a guiding tool coupled to the energy delivery device, the guiding tool having at least one aperture with a proximal end and a distal end, wherein the RF electrode is advanced through the aperture in the guiding tool and the introduction of the RF needle electrode into the sphincter is facilitated.

20 36. The apparatus of claim 35, wherein the aperture

proximal end and the aperture distal end are located in a different plane.

25 37. The apparatus of claim 35, wherein the RF electrode is advancable through an aperture in the energy delivery device introduction member.

38. A sphincter treatment apparatus, comprising:

30 an energy delivery device introduction member having a proximal end with a first radius of curvature and a distal end with a second radius of curvature, wherein the second radius of curvature is greater than the first radius of curvature, the introduction member configured to be introduced in the sphincter in a non-deployed state, and expanded to a deployed state to at

35

Atty. Docket No.: 9222.16791-CON 2

- 41 -

least partially expand at least one of the sphincter or
an adjoining structure;

5 a first energy delivery device coupled to the
energy delivery device introduction member, the first
energy delivery device having a distal portion; and

10 a retainer member coupled to the energy
delivery device introduction member and configured to
controllably position the energy delivery device
introduction member in an orifice of a sphincter, the
retainer member at least partially surrounding the energy
delivery device introduction member and including a slot
to enhance an engagement of the energy delivery device
introduction member with the sphincter